

## ABSTRACT

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### **Measurement of $^{137}\text{Cs}$ In Coconut Juice by Gamma Spectrometry Following Separation on Ammonium Molybdophosphate (AMP).**

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An important mission of the Health & Ecological Assessment Division within the Lawrence Livermore National Laboratory (LLNL) is to develop improved methodologies for measuring the levels, transfers and exposure pathways of radioactive substances in the environment. Over the past two decades we have been conducting an extensive field characterization and dose assessment program in the Marshall Islands in order to estimate doses to populations exposed to residual contamination as a result of atmospheric nuclear weapons explosions. One important exposure pathway for the local Marshallese population is through ingestion of coconut juice containing  $^{137}\text{Cs}$  concentrated from contaminated soils. Historically, we used a simple dehydration technique (slow evaporation) in order to concentrate any  $^{137}\text{Cs}$  present in the coconut juice samples. This method was tedious, time consuming and required the use of formaldehyde. These problems lead to the development of an improved procedure involving acidification and addition of  $^{134}\text{Cs}$  tracer to the sample and separation of the Cs isotopes on ammonium molybdophosphate (AMP). The AMP is counted by gamma-spectrometry in the centrifuge tube used to collect the precipitate. The average chemical recovery was  $95.7 \pm 2.5\%$  (N= 1204) and detection limits improved allowing a reduction in sample size. Storage and waste disposal problems created by the original dehydration method were also eliminated.

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